

REMARKS

Applicant respectfully requests reconsideration of this application. Claims 1-30 are currently pending.

Claims 1, 5-7, 9, 13-16, 21-24, and 28-30 have been amended. Claims 2-4, 10-12, 18-20, and 25-27 have been cancelled. No claims have been added.

Therefore, claims 1, 5-9, 13-17, 21-24, and 28-30 are now presented for examination.

Drawings

It is submitted that the claim elements are contained within the drawings, and the drawings require no amendment. However, the claims have been amended to more closely follow the terminology of the specification and drawings.

The Office Action describes the claims as “first plurality of packet[s], second plurality of packets, first subset and second subset”. However, it is submitted that all of these elements are currently illustrated in the figures. It noted that it is not necessary that the precise wording used in the specification also be used in the claims:

There should be clear support or antecedent basis in the specification for the terminology used in the claims. Usually, the original claims follow the nomenclature of the specification; but sometimes in amending the claims or in adding new claims, applicant employs terms that do not appear in the specification. This may result in uncertainty as to the interpretation to be given such terms. See MPEP § 608.01(o). **It should be noted, however, that exact terms need not be used *in haec verba* to satisfy the written description requirement of the first paragraph of 35 U.S.C. 112.** *Eiselstein v. Frank*, 52 F.3d 1035, 1038, 34 USPQ2d 1467, 1470 (Fed. Cir. 1995); *In re Wertheim*, 541 F.2d 257,

265, 191 USPQ 90, 98 (CCPA 1976). See also 37 CFR 1.121(e) which merely requires *substantial* correspondence between the language of the claims and the language of the specification.

(MPEP §1302.01) (Emphasis added)

Regarding the first plurality of packets and the second plurality of packets, the Examiner is directed to Figure 2, which illustrates the first queue (prioritized packet queue 230) containing packets, and the second queue (copied packet queue 250). “First” and “second” are simply designating different queues, and are commonly used in claims. While this amendment is not required under law, the specification has been amended to include the terminology from the claims. The language of the original claims are a part of the filed application, and may be provided in the specification. Thus, “prioritized packet queue” is also referred to as “first queue” and “copied packet queue” is also referred to as “second queue”. With the amendment, the precise terms provided in the specification and figures are utilized in the claims.

With regard to the transfer of data from the first queue to the second queue, the precise term used in the specification in general is “set” rather than “subset”. While it is submitted that this is not necessary to comply with law, the claims have been amended to change “subset” to “set” in the claims to more closely follow the specification. As to the illustration of the sets, figure 1 illustrates the sets of packets being scheduled. In this illustrated embodiment, each set of packets 115 (including the first set and the second set) includes three packets of the P1 priority, two packets of the P2 priority, and one packet of the P3 priority. (See Detailed Description, ¶0019) These priorities may be seen as priority 1 255, priority 2 260, and continuing through priority *n* 265 in the copied packet queue 250 (the second queue), from which the packets are scheduled. The transfer of the

packets is then shown in flowchart form as well, where each set of packets includes three P1 packets, two P2 packets, and one P3 packet. (See 410-420 of Figure 4 and 510-520 of Figure 5; Detailed Description, ¶¶0027 and 0029) It is noted that the specification is clarified further such that paragraph 0025 refers to sub-queues, rather than queues, for consistency.

Thus, it is submitted that the drawings contain the elements of the claims in the manner required by law.

Claim Rejections under 35 U.S.C. §101

The Examiner rejected claims 9-15 under 35 U.S.C. §101 because the claimed invention is allegedly directed to non-statutory subject matter.

Without any concession regarding the substance of the rejection, claim 9 has been amended to clarify the hardware elements of the claims.

Claim Rejections under 35 U.S.C. §112

The Examiner rejected claims 1-30 under 35 U.S.C. 112, first paragraph, as allegedly failing to comply with the enablement requirement.

Without any concession regarding the substance of the rejection, the claims have been amended to provide further clarification, and it submitted that all elements of the claims are enabled.

Claim Rejections under 35 U.S.C. §112

The Examiner rejected claims 1-30 under 35 U.S.C. 112, second paragraph, as allegedly failing to particularly point out and distinctly claim the subject matter which application regards as the invention.

Without any concession regarding the substance of the rejection, the claims have been amended, and it is submitted that all claims particularly point out and distinctly claim the subject matter of the invention.

Claim Rejection under 35 U.S.C. §103

Sarkinen et al. in view of Cohen et al. and Shih et al.

The Examiner rejected claims 1-2, 4-10, 12-18, 20-15 and 27-30 under 35 U.S.C. 103(a) as being unpatentable over U.S Patent Publication No. 2003/0063562 of Sarkinen et al., (“*Sarkinen*”)in view of U.S Patent No. 4,807,111 of Cohen et al., (“*Cohen*”) and in further view of U.S Patent No. 6,615,223 of Shih et al., (“*Shih*”).

The Examiner rejected claims 3, 11, 19 and 26 under 35 U.S.C. 103(a) as being unpatentable over U.S Patent Publication No. 2003/0063562 of Sarkinen et al., (“*Sarkinen*”) in view of U.S Patent No. 4,807,111 of Cohen et al., (“*Cohen*”) in further view of U.S Patent No. 6,615,223 of Shih et al., (“*Shih*”) and in further view of U.S Patent No. 6,940,814 of Hoffman, (“*Hoffman*”).

Claims 1 is as follows:

1. A method comprising:
receiving packets of data in a first queue, each of the packets having one of a plurality of priorities, the plurality of priorities including a first priority and a second priority, the first priority being higher than the second priority;
copying a first plurality of packets from the first queue to a second queue, the first queue and the second queue each containing a plurality of sub-queues, each of the plurality of sub-queues representing one of the plurality of priority levels;

scheduling a first set of packets from the second queue, wherein the first set of packets includes one or more of packets of the first priority if the second queue contains packets of the first priority and one or more packets of the second priority if the second queue contains packets of the second priority, and wherein the number of packets in the set of packets for each priority are chosen using weighted round robin scheduling based on the priority of each packet;

providing the first set of packets from the second queue to a device driver;

determining whether after the first set of packets has been provided to the device driver the second queue includes a packet with the first priority;

if the second queue includes a packet with a first priority after the first set of packets has been provided to the device driver, scheduling a second set of packets from the second queue using the weighted round robin scheduling; and

if the second queue does not include a packet with the first priority after the first set of packets has been provided to the device driver, pausing scheduling of packets from the second queue and copying a second plurality of packets from the first queue to the second queue.

It is submitted that, among other differences, the cited references do not teach or reasonably suggest scheduling a first set of packets from the second queue, wherein the first set of packets includes one or more of packets of the first priority if the second queue contains packets of the first priority and one or more packets of the second priority if the second queue contains packets of the second priority, and wherein the number of packets in the set of packets for each priority are chosen using weighted round robin scheduling

based on the priority of each packet, providing the first set of packets from the second queue to a device driver, determining whether after the first set of packets has been provided to the device driver the second queue includes a packet with the first priority; if the second queue includes a packet with a first priority after the first set of packets has been provided to the device driver, scheduling a second set of packets from the second queue using the weighted round robin scheduling; and if the second queue does not include a packet with the first priority after the first set of packets has been provided to the device driver, pausing scheduling of packets from the second queue and copying a second plurality of packets from the first queue to the second queue.

Because of the modifications to the claims, all cited references are addressed together. It is submitted that the elements of the claims, as amended, as not taught or suggested by the cited references.

It is further submitted that the rejection is not sufficient because such rejection is based on improper hindsight, in which the minor elements of disparate patents are pieced together in a manner that was not intended by the references. There is no reasonable basis for the attempted combination of references because the combination would change the principle of operation of the references, as prohibited by MPEP §2143.01:

If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959)

The Examiner has cited to the following references:

Sarkinen regards a programmable multi-service queue scheduler. The described system provides for scheduling data and utilizes a number of queues. The queues are associated with a particular quality of service, traffic type, or queue scheduling prioritization. (*Sarkinen*, ¶0011) However, the reference does not appear to contain any teaching or suggestion of the elements of claims at issue here. With regard to queues containing a plurality of sub-queues, the Office Action cites to paragraph 0061 and 0063 of the *Sarkinen* reference. However, a reading of such paragraphs does not reveal any discussion of sub-queues as provided in claim 1:

[0061] In addition to defining the scheduling characteristics of the queues 300 and cooperating with the queue mapping table 304 to map criteria table entries to the queues 300, the criteria table 302 also determines how much data (i.e., bandwidth) will be scheduled, in terms of bytes, cells or packets, for each scheduling decision. The architecture of the scheduler 301 also includes a scheduling period timer 310 and state machines 312 that cooperate with the criteria table 302 to schedule the data received by the queues 300a-n.

[0063] In general, and according to one scheduling technique of the present invention, a particular queue 300 is actually scheduled when three events occur. A particular queue 300 is actually scheduled when 1) the particular queue 300 has data available to be transferred; 2) the particular queue's criteria is satisfied; and 3) the particular queue has the highest priority relative to all other queues currently containing data and valid criteria. A scoreboard table 306 indicates the availability or unavailability of data for each queue 300. The scoreboard table 306 may receive information from an enqueue engine 402 and dequeue engine 404 of the system concerning the present availability or unavailability of data for each queue 300.

The reference does appear to regard when a queue is scheduled, but this regards comparison with other queues. The cited claim element does not appear to be present here, or elsewhere in the reference. If the citation is in error, the Applicant has been unable to locate the portion of this reference intended by the Office Action. Applicant respectfully requests clarification of this matter if the rejection is maintained.

Cohen regards an older dynamic queuing method that shortens a dispatching queue by deleting queue elements having all task blocks in a wait state. The Office Action indicates that the reference teaches receiving packets of data in a first queue, each of the packets of having one or more priorities, and copying a first plurality of packets from the first queue to the second queue. However, this is simply generation of an output queue from an input queue, which does not appear to be relevant to the queues provided here. Such described queues do not contain sub-queues as provided in claim 1, and are not relevant to the data transfers described in claim 1. The use of the queues as provided in claim 1 would require modifications in the principle of operation of the input and output queues, which do not appear to utilize sub-queues of prioritized data.

Shih regards a data replication, specifically using LDAP replication components. The Office Action indicates that the reference teaches that if a second queue does not include a packet with the first priority, then copying a second plurality of packets from the first queue to the second queue. However, what the reference actually regards is the copying of information from a change log to a replication log, which are used in the modification of data between LDAP sites. The logs are not queues used as provided in the claims, and do not utilize sub-queues of prioritized data. These logs could not be used as provided in claim 1 without changing the principle of operation of the logs

because such logs are shadow logs used for data replication, and thus would be not be useful for the transfer and holding of data for scheduling.

Hoffman regards quality of service in a multi-layer element, wherein a multi-layer network element provides for forwarding received packets from an input port to one or more output ports with a certain quality of service. With regard to queues, when output queues exceed or meet a threshold value below the queue's capacity packets are randomly discarded. There are further elements regarding determination of which flow has caused the queue to become full, and the lowering of priority of such a queue. The reference does address weight round robin scheduling with regard to multiple output queues. However, this does not appear to teach or suggest the use as provided in claim 1, in which, if the second queue includes a packet with a first priority after the first set of packets has been provided to the device driver, there is scheduling of a second set of packets from the second queue using the weighted round robin scheduling, but if the second queue does not include a packet with the first priority after the first set of packets has been provided to the device driver, then the scheduling of packets from the second queue is paused and the second plurality of packets is copied from the first queue to the second queue.

Thus is it submitted that the cited references, alone or in any combination, do not teach or reasonably suggest the elements of claim 1. It is submitted that the arguments provided with regard to claim 1 are also application to independent claims 9, 16, 24, and such claims are also allowable. The remaining claims are dependent claims, and are allowable as being dependent on the allowable base claims.

Conclusion

Applicant respectfully submits that the rejections have been overcome by the amendment and remark, and that the claims as amended are now in condition for allowance. Accordingly, Applicant respectfully requests the rejections be withdrawn and the claims as amended be allowed.

Invitation for a Telephone Interview

The Examiner is requested to call the undersigned at (503) 439-8778 if there remains any issue with allowance of the case.

Request for an Extension of Time if Needed

The Applicant respectfully petitions for an extension of time to respond to the outstanding Office Action pursuant to 37 C.F.R. § 1.136(a) should one be needed. Please charge any fee to our Deposit Account No. 02-2666.

Charge our Deposit Account

Please charge any shortage to our Deposit Account No. 02-2666.

Respectfully submitted,

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